**Syllabus Chem 28B Organic Chemistry #55258**

**V. Cornel**

**Reedley College, Spring 2015**

Lecture: TTh 11:00pm-12:15 in Room PHY 77

Office hours: PHY78 MW 12-1 and a virtual office hour on F 9-10 am

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**Lecture**

In general, read the chapter sections ahead of the lecture. Print the fill-in notes for each chapter and bring to class. At the end of the fill-in notes for each chapter are the assigned homework questions. Do these in pencil to check your understanding of the chapter and to practice for the exams. Then check your answers with the solutions I post and make the corrections in ink. I will collect this homework at the beginning of the next exam and you will be graded for completeness, not for getting the correct answers. The more effort you put into the homework the better you will do in the exams. Do not just copy the solutions! Look at the worked examples in your textbook too. Study the summaries of the reactions at the end of the chapters and be able to draw products for any of the reactions covered in lecture. Memorize the reaction mechanisms given in the notes.

**Textbooks**

Klein, Organic Chemistry, 2nd edition

**Course objectives:**

This is the second semester in a year-long course in organic chemistry designed for students majoring in chemistry and related disciplines, such as premedical, prepharmacy, predental, biology, biochemistry or chemical engineering. We will build on the knowledge gained in Chem 28A, which is the pre-requisite course. It covers the study of several groups of compounds in organic chemistry including aromatic compounds, aldehydes, ketones, carboxylic acid derivatives, amines, carbohydrates, amino acids, nucleotides and lipids. Each group is analyzed in terms of their structure, physical properties, nomenclature, reactions and reaction mechanisms. Also included are pericyclic reactions, the oxidation-reduction of organic functional groups, protecting groups in multistep syntheses and IR and NMR spectroscopy of these functional groups. A thorough introduction to bio-molecules, such as carbohydrates, lipids, proteins, and DNA are an important part of this semester. The students will develop a level of learning skills, vocabulary and critical thinking skills which will enable them to successfully transfer to four year institutions.This course is also helpful towards preparation for the MCAT and PCAT.

**Student Learning Outcomes:**

Upon completion of this course, students will be able to**:**

1. Predict the products of reactions of aromatic compounds.

2. Draw the reaction mechanism of an electrophilic aromatic substitution.

3. Complete reactions involving the carbonyl functional group such as aldehydes, ketones and carboxylic acids.

4. Recognize bio-molecules such as carbohydrates, lipids, amino acids, proteins and nucleic acids.

5. Explain how DNA sequencing takes place and what its role is in the current developments in biochemistry.

**Grading**:

**Average of the 5 exams (95%) and 5% homework**

Typical break-off for grading: A> 90%; B 80-89%; C 70-79%; D 60-69%; F< 59%.

**Drop date**: The final date to drop this class is Friday March 13, 2014. After that day a letter grade needs to be assigned and it will appear on your transcripts. You will avoid a "W" if you drop the class on or before Friday January 30, 2014.

**Attendance and class rules**: In accordance with Community College policy attendance is mandatory. If you miss the first day without contacting the instructor you will be dropped. After that if you miss a total of 25% of the lectures *without contacting the instructor* *and providing a credible written excuse*, you may be dropped.

Use of i-phones, cell phones, tardiness, leaving early, stepping out of class, talking during class, disrupting class, sleeping during class, or doing other work is all considered disruptive behavior and you will be recorded as "absent" and may be asked to leave.

If you have to miss an exam *and provide a credible, written excuse*, I will allow you to do a make-up exam.

**Lecture topics**:

We will have to work at a fast pace to cover all these chapters. You are supposed to read the chapters ahead of time and do the assigned homework. Also, watching UC Irvine lectures, or Khan Academy video’s, can be very helpful to fully understand the material.

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| A. Benzene and aromatic character; Huckel rule  B. Electrophilic substitution of aromatic compounds  C. Aldehydes and ketones. Nucleophilic addition reactions  D. Carboxylic acids and its derivatives  E. Carbanions I:  aldol and Claisen condensations  F. Amines I:  preparation and physical properties  G. Amines II:  reactions  H. Phenols  I. α, β-unsaturated carbonyl compounds (conjugate addition)  J. Macromolecules:  polymers and polymerization  K. Bio-molecules: carbohydrates, lipids, amino acids, proteins  L. Nucleic acids, DNA |

**Important***: If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.*

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| Date |  |
| Thursday February 5 | Exam 1 |
| Thursday March 5 | Exam 2 |
| **Friday 3/13** | **Last day to drop a course to receive a “W”** |
| Thursday March 26 | Exam 3 |
| **March 30-Apr 3** | **Spring Recess.** |
| Thursday Apt 30 | Exam 4 |
| Tuesday May 19 | Exam 5 11:00-12:50 |